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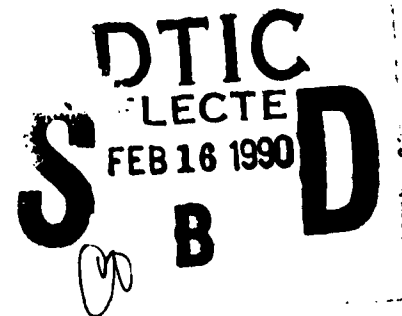Construction Engineering
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The Regulations and Compliance Expertise (RACE) Knowledge-Base System: Description and User Guide

by
Diane K. Mann
Gloria R. Franczak
Lester Pritchard
Donald H. Wiggins

The Regulations and Compliance Expertise (RACE) program is a knowledge-based system designed to provide: (1) a vehicle for communication among personnel dealing with compliance assessment; (2) a data base for user contributions and updates; and (3) a variety of information services that can be continuously expanded. The system allows self-contained updating, systematic analysis of alternatives, and selection of optimal technologies. Example sessions contained in this report illustrate the use of various keyboard commands. RACE is available as a prototype system in the Environmental Technical Information System (ETIS), which can be accessed by almost any computer or terminal attached to a modem and phone line.

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The Regulations and Compliance Expertise (RACE) program is a knowledge-based system designed to provide (1) a vehicle for communication among personnel dealing with compliance assessment, (2) a data base for user contributions and updates, and (3) a variety of information services that can be continuously expanded. The system allows self-contained updating, systematic analysis of alternatives, and selection of optimal technologies. Example sessions contained in this report illustrate the use of various keyboard commands. RACE is available as a prototype system in the Environmental Technical Information System (ETIS), which can be accessed by almost any computer or terminal attached to a modem and phone line.

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FOREWORD

This work was performed for Headquarters, U.S. Air Force Environmental Office, under Project Order MIPR #88-04 dated February 1988, "Environmental Technical Information System"; Work Unit JE8. The Air Force Technical Monitor was MAJ Roy Salomon.

This research was performed by the Environmental Division (EN), U.S. Army Construction Engineering Research Laboratory (USACERL). Dr. R. K. Jain is Chief of the Environmental Division. The Technical Editor was Diane P. Mann, USACERL Information Management Office.

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THE REGULATIONS AND COMPLIANCE EXPERTISE (RACE) KNOWLEDGE-BASE SYSTEM: DESCRIPTION AND USER GUIDE

1 INTRODUCTION

Background

Army Regulation (AR) 200-1 and Air Force Regulation (AFR) 19-1 require the respective military installations to institute environmental protection programs directed toward all environmental media.[1] The environmental programs have many facets and implement some 22 Federal statutes, as well as state and local regulations. To monitor the overall environmental compliance program, the Air Force has designed the Environmental Compliance Assessment and Management Program (ECAMP) and the Army has its Environmental Review and Management Assessment (ERMA) program. Both programs have manuals with environmental protocols to be used for internal and external assessments on a regular basis.

Electronic bulletin boards have been designed to answer technological questions, but now other questions are arising that require explanations and interpretation in the legal area. Experience has demonstrated that the creation of a specially adapted data base is costly and that costs mount with the updating necessary to keep a system current. Office automation and increased computer literacy of the user group create the potential for reducing data development and updating expenses while concentrating on areas most relevant to Army and Air Force problems and policy.

Objective

The objective of this effort was to create a knowledge-based communication medium for compliance assessors to obtain information, policy, interpretations, and advice from military lawyers and other bulletin board users with environmental compliance expertise. This system allows rapid dissemination of compliance information and self-contained updating.

Approach

Information was collected from several military lawyers; and those concentrating on environmental law suggested topic areas based on their experience. Compliance assessors were interviewed about their problem areas, program expectations, and time constraints. Their responses were used to modify and add features to a prototype system.

The resulting system, Regulations and Compliance Expertise (RACE), provides (1) a vehicle for communication among personnel dealing with compliance assessment, (2) a data base for user contributions and updates, and (3) a variety of information services that can be continuously expanded.

---

[1]AR 200-1, *Environmental Protection Enhancement* (Department of the Army, 15 June 1982); AFR 19-1, *Pollution Abatement and Environmental Quality* (Headquarters, U.S. Air Force, 9 January 1978).

Mode of Technology Transfer

After field testing of RACE by environmental personnel in Air Force and Army installations, the system will be fielded as part of the Environmental Technical Information System (ETIS).

2 STRUCTURE AND CONTENT

The RACE Knowledge Base

A knowledge base is an organized collection of information, stored on a computer, that focuses on a particular subject. Although a knowledge base is an information resource for focusing and refining inquiries into a given topic, it is not a static collection of facts. A knowledge-based system such as RACE is dynamic and constantly evolving; users actively expand the available store of information by posing and answering questions and making comments on specific topics. Thus a knowledge-based system is a means for managing new ideas as well as a means for storing existing facts.

Knowledge-based systems such as RACE, which allow user questions, answers, and comments, can become self-updating through vigorous use. The fundamental requirement is a broad pool of expertise among the users. Such broad expertise exists among the personnel in various offices, military installations, and educational institutions. For example, an Army installation may have recent information on state permit fees, while an Air Force base may have developed broad expertise on Native American issues. Indications are that collective expertise covers a wide range with many years of experience in different specializations. This experience is invaluable to new people in similar positions at other offices. RACE offers a quick and easy method of sharing this expertise. A user-active system with the input of experienced and trained environmental personnel assures currency with the latest technologies available for dealing with resource problems and management programs.

Additional features include a rated list of environmental courses, a library of rated publications, call-in information services, and computerized information resources.

Knowledge Base Structure

The current structure of the RACE knowledge base is shown below. These topics are the broad areas that may be addressed within each section. It is important to emphasize that while this is the current structure, it is completely dynamic and user-driven and thus subject to constant change. The RACE software supports creation of subtopics at any time by any user and of new topics by the director, resulting from users' suggestions.

Title	Description:
1. waiver	Supremacy and Sovereign Immunity Waivers
2. require	State and Local Substantive Requirements
3. fee	State and Local Permit Fees
4. penalty	Civil, Criminal, and Other Sanctions
5. order	Executive Orders Affecting Federal Agencies
6. NEPA	NEPA Administrative Procedures
7. hazard	Radioactive and Hazardous Materials Administration and Litigation Questions
8. super	Superfund Interagency Relationships and Agreements
9. inspect	Inspection Questions and Advice
10. culture	Cultural Resources and Historic Preservation Plans
11. native	Native American Concerns and Questions

12. directory	Names, Addresses, and Telephone Numbers
13. meeting	Meetings and Courses of Interest
14. comment	Comments and Suggestions on Topic Areas, Program Use, or Miscellaneous Subjects

3 USER INSTRUCTIONS

Accessing ETIS

RACE is available as an experimental module of ETIS. ETIS can be accessed over WATS and commercial telephone lines using almost any type of computer or terminal. For detailed instructions on specific settings and procedures, see Appendix A.

If you do not have an ETIS log-in and password, just call the Environmental Division (Modeling and Simulation Team) of USACERL (800/USA-CERL or 217/352-6511) and ask for Don Wiggins at extension 444.

After getting the log-in and password dial the system's number (217/333-5067, or WATS 800/637-0958) using the instructions in Appendix A. If there is no answer, double check to be sure your equipment is properly configured and try again. If there is still no answer, call the USACERL Environmental Division's number shown above for assistance.

General ETIS Commands

These commands can be used throughout the ETIS system:

Command	Explanation
<cr> (the "return" or "enter" key)	When instructed to do so, depress the return key to initiate the next action.
Ctrl-d	Simultaneously press the control key and tap the letter d, to "back up" through each level to your basic system prompt.
Back Space	Use this to correct an input error, prior to pressing the <cr> key. In some cases, you may have to hold down the control key and tap the h key to back up on a line.
Ctrl-s	Hold down the control key and tap the s key to stop a long listing from scrolling off your screen.
Ctrl-q	Hold down the control key and tap the q key to continue the listing stopped by Ctrl-s.
Delete	Use the delete key to stop a long listing from scrolling up your screen. If you use the delete key in lieu of Ctrl-s, you cannot continue scrolling through the listing from that point.

The RACE Software

After entering the RACE system, you will be asked to provide a RACE command. If you press <cr> you will see the following options:

Type: To:

talk   Read and write comments
             on environmental topics.
new   Look at new comments.
pick   Limit the list of topics to
             read with "new".
help   Get instructions on use.
bye   Leave the system.

RACE Command (RETURN to see list): **talk**

The complete knowledge bases discussed in Chapter 2 are accessed by choosing "talk" from the menu (see Appendix B). In "talk", notes and responses can be read and/or entered by using an editor (see Appendix C). The RACE editor is a simple data input routine that accepts one line of input at a time and is ended by putting a period on a line by itself, and then pressing <cr>. A new RACE user who is also familiar with any of the UNIX editors can specify his preference for those routines when requesting a login to ETIS.

To see only those parts of the knowledge bases that are new since your last access, start the system using the "new" command (see Appendix D) after first choosing your topic areas of interest through the use of the "pick" command. If only certain knowledge bases are desired routinely, such as inspection questions and Superfund information, use the "pick" command to select those two knowledge bases. From that point on, you will only be shown those notes and responses which you have not yet seen in only those two areas. The complete listing of knowledge bases can still be accessed by using the "talk" command in lieu of the "new" command, and the number and combination of knowledge bases selected in "pick" can be altered at any time.

The UNIX "notes" software was used as the vehicle for the RACE system. Complete documentation of the features of this software can be found in the *Notesfile Reference Manual.*[2]

Commands for the "talk" and "new" options:

Command   To:

space   Press the space bar to show the next page of the
             note or response.

---

[2] R.B. Essick and R. Kolstad, *Notesfile Reference Manual*, TR #UIUCDCS-R-82-1081 (University of Illinois, September 8, 1982).

`<cr>`	Go to the next note, ignoring any responses to the current note.
-	Press the minus key to go back one screen. If used at the first page of a base note, go to the previous note. If used at the first page of a response, goes to the previous response (or base note if this is the first response).
i	Return to the list of topics for the current note.
q	Leave the current topic; go back to the main menu.
Ctrl-d	Hold down the control key and press the d key to return to the command level, ignoring any further notesfiles in RACE. If using the "new" command when you use Ctrl-d, your notesfile history will not be updated.
j	Jump to the next unread note or response.
J	Jump to the next unread note, ignoring any further responses in the current note string.

4 SUMMARY AND RECOMMENDATIONS

This report has described a knowledge-based communication system mainly for use by personnel dealing with environmental compliance assessment issues. RACE provides a medium for compliance assessors to obtain information, policy, interpretations and advice from military lawyers and other bulletin board users with environmental compliance expertise. It is recommended that the system be operated in pilot mode for 1 year before transfer to the ETIS Support Center for continued operation.

APPENDIX A:

DIALING INTO THE ETIS SYSTEM

To call the computer that contains the RACE program:

If you are using a personal computer:

Using the instructions with your communications software package, ensure that your settings are as follows, and then dial 800-637-0958:

Speed:	300, 1200 or 2400 baud
Parity:	Even
Data Bits:	7
Stop Bits:	1
Echo:	Off (full duplex)
Emulation:	We suggest vt100 or ibm3101. Many others will work quite nicely, so don't be afraid to experiment.

If you are using a dumb terminal:

Adjust your modem to the settings shown above, except for emulation, and follow the procedures shown below. These are standard commands for Hayes compatible modems, and user inputs are shown in bold print.

AT
OK
ATDT9,18006370958
CONNECT

Once you see the "CONNECT" statement on your screen, press **<cr>** (your *Enter* or *Return* key) several times until you see the following:

UofI Computing Services Office Network - Pyramid 98x (osiris.cso.uiuc.edu)
(4.2 BSD / System 5) OSx 4.0

login: **flower**	(Enter your own login, and press <cr>.)
Password: **audrey2**	(Enter your own password, and press <cr>.)

Last login: Tue Aug 1 09:34:14 on ttyp0

TERM = (vt100)   (If your own computer or modem is emulating something other than *vt100*, enter that information here and press <cr>. Otherwise, just press <cr>, and your TERM setting will automatically be set to *vt100*.)

The next line you see will be the login names for everyone who is presently logged in to the ETIS computer, followed by:

flower osiris 1> **RACE**   (This is your basic system prompt. To access the
                              RACE bulletin board, just type **RACE** and press
                              <cr>.)

Welcome to RACE!

The Regulations and Compliance Expertise program is a knowledge-based system that is designed to provide (1) a vehicle for communication among personnel dealing with compliance assessment, (2) a database for user contributions and updates, and (3) a variety of information services that can be continuously expanded.

The system provides a medium for compliance assessors to obtain information, policy, interpretations, and advice from military lawyers and other bulletin board users with environmental compliance expertise.

Questions regarding use of the system should be directed to Don Wiggins at 1-800-USA-CERL, extension 444.

RACE Command (RETURN to see list):

APPENDIX B:

EXAMPLE SESSION FOR READING NOTES

The following is a sample session in the RACE system that will give you an idea how the system works. This section shows you how to read through the notes file, and Appendix C will show you how to post notes of your own or respond to notes that were posted by others. Each set of lines sets off the contents of a single screen on your computer or monitor. User inputs are shown in bold print and tutorial comments are italicized and in brackets.

RACE Command (RETURN to see list): <cr>

Type:	To:
talk	Read + write comments on environmental topics.
new	Look at new comments.
pick	Limit the list of topics to read with the 'new' command.
help	Instruction on use.
bye	Leave the system.

RACE Command (RETURN to see list): **talk**

Title:	Description:
1. waiver	Supremacy and sovereign immunity waivers.
2. require	State and local substantive requirements.
3. fee	State and local permit fees.
4. penalty	Civil, criminal, and other sanctions.
5. order	Executive orders affecting federal agencies.
6. nepa	NEPA administrative procedures.
7. hazard	Radioactive and hazardous materials administration and litigation questions.
8. super	Superfund interagency relationships and agreements.
9. inspect	Inspections and advice.
10. culture	Cultural resources and historic preservation plans.
11. native	Native American concerns and questions.
12. directory	Names, addresses, and telephone numbers.
13. meeting	Meetings and courses of interest.
14. comment	Comments/suggestions on topic areas, program use, or miscellaneous subjects.

Type 'quit' to leave menu.

[Select one of the topic areas and type in that number.]

Enter title: **3** <cr>

15

2/1/89   1 Fee/Tax   6 aecurlee

                **** End of Notes ****

*[At this point you would normally press the number of the note you wished
to view. In this case there is only one note, so you would type that number. As soon as you press one
of the number keys, your screen will immediately show "Read note >", followed by your selection.]*

Read note> **1** **<cr>**

Note 1   race.fee   6 responses
aecurlee   Fee/Tax   7:04 am Feb 1, 1989

We find that we are encountering many state fees that we feel are taxes. Examples are NH (Haz Waste),
MS (UST), AL (UST), IN (UST), CA (post closure trust fund).

Would appreciate info exchange.

[Press the space bar once to see the first response.]

Note 1   race.fee
afduell   Response 1 of 6   11:11 am Feb 1, 1989

If the state imposes a per ton charge on solid waste going into a landfill with the operator collecting the
money and forwarding it to the state for placement into a state superfund, is this a tax or a fee? As a
layman, this appears to be a tax since the US Govt. does not obtain any advantage to the money. Am I
correct? Or is it partially correct with additional justification?

[Press the space bar one to see the next response.]

Note 1   race.fee
fdevens   Response 2 of 6   3:05 pm Feb 9, 1989

We have had some experience with New Hampshire sending us some bills for waste handling at our
reserve centers. I sent the bills to JAG for clarification on the same issue. The preliminary discussion
seemed to be whether or not the fee was a tax or a service. If the fee was for the privilege of removing
waste from the state of New Hampshire, then the fee was a tax and was not payable. On the other hand,
if the fee was for handling the paperwork on their end, then the fee was for a service whereby the
government stood to gain. The latter would make the fee payable. This is where the matter stands now
(also pawning the problem off to a degree, on the local DRMO since they are the ones with the Haz.
Waste disposal contract).

(press) **q**

Title:	Description:
1. waiver	Supremacy and Sovereign Immunity Waivers.
2. require	State and Local Substantive Requirements.
3. fee	State and Local Permit Fees.
4. penalty	Civil, Criminal, and other Sanctions.
5. order	Executive Orders Affecting Federal Agencies.
6. NEPA	NEPA Administrative Procedures.
7. hazard	Radioactive and Hazardous Materials Administration and Litigation Questions
8. super	Superfund Interagency Relationships and Agreements.
9. inspect	Inspection Questions and Advice.
10. culture	Cultural Resources and Historic Preservation Plans.
11. native	Native American Concerns and Questions.
12. directory	Names, Addresses, and Telephone Numbers.
13. meeting	Meetings and Courses of Interest.
14. comment	Comments and Suggestions on Topic Areas, program use or Miscellaneous Subjects.

Type 'quit' to leave manu.

APPENDIX C:

EXAMPLE SESSION FOR WRITING NOTES

The following is a sample session in the RACE system that will give you an idea how the system works. This section shows you how to post a note of your own or post an answer to someone else's note. The process is exactly the same, except that original notes are posted immediately after entering the specific topic area menu, and responses are posted at the end of other notes or responses.

In the following examples, all user inputs are shown in bold print, tutorial comments are italicized in brackets, and contents of a single screen are set apart by horizontal lines.

RACE Command (RETURN to see list): **<cr>**

Type:	To:
talk	Read + write comment on environmental topics.
new	Look at new comments.
pick	Limit the list of topics to read with the 'new' command.
help	Instruction on use.
bye	Leave the system.

RACE Command (RETURN to see list): **talk**

Title:	Description:
1. waiver	Supremacy and sovereign immunity waivers.
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11. native	Native American concerns and questions.
12. directory	Names, addresses, and telephone numbers.
13. meeting	Meetings and courses of interest.
14. comment	Comments/suggestions on topic areas, program use miscellaneous subjects.

Type 'quit' to leave menu.

[Select one of the topic areas and type in that number.]

18

Enter title: **3**   <cr>

---

race.fee   7:04 am Apr 3, 1989

2/1/89   1 Fee/Tax   6 aecurlee

**** End of Notes ****

*[At this point you would normally press the number of the note you wished
to view. In this case there is only one note, so you would type that number. As soon as you press one
of the number keys, your screen will immediately show "Read note >", followed by your selection.]*

Read note> **1**   <cr>

Note 1   race.fee   6 responses
aecurlee   Fee/Tax   7:04 am Feb 1, 1989

We find that we are encountering many state fees that we feel are taxes. Examples are NH (Haz Waste),
MS (UST), AL (UST), IN (UST), CA (post closure trust fund).

Would appreciate info exchange.

[If you want to write a response to this note, just press the letter "w" at this point.]

w

Edit Response Text:
Enter Message. When done enter a period (.) on a new line.

*[Begin typing your message, pressing the Return key at the end of each line of text. RACE uses a very
basic text editor that does not include the word-wrap feature found in most word processors.]*

**My initial response is that it is a tax, but that through the mechanism the state chose, it is payable.
Contact JA with the info (lots of details), but don't be surprised at the outcome.
.** <cr>

[Note that you must type a period on the last line of your note, and then press the Enter key (<cr>).

Do you wish this response to be anonymous? (y/n): **n**

[Now you will be shown how the message actually appears on the bulletin board.]

My initial response is that it is a tax, but that through the mechanism the state chose, it is payable. Contact JA with the info (lots of details), but don't be surprised at the outcome.

[If you wish to return to the "fee" menu, just press the "i" key. Otherwise, press the "q" key to return to the overall RACE menu.]

i

[Note that the number of responses shown next to the original note now include the one that was just written.]

Note 1   race.fee   7 responses

aecurlee   Fee/Tax   7:04 am Feb 1, 1989

                ****End of Notes****

[Press the "q" key to return to the main RACE menu.]

q

	Title:	Description:
1.	waiver	Supremacy and sovereign immunity waivers.
2.	require	State and local substantive requirements.
3.	fee	State and local permit fees.
4.	penalty	Civil, criminal, and other sanctions.
5.	order	Executive orders affecting federal agencies.
6.	nepa	NEPA administrative procedures.
7.	hazard	Radioactive and hazardous materials administration and litigation questions.
8.	super	Superfund interagency relationships and agreements.
9.	inspect	Inspections and advice.
10.	culture	Cultural resources and historic preservation plans.
11.	native	Native American concerns and questions.
12.	directory	Names, addresses, and telephone numbers.
13.	meeting	Meetings and courses of interest.
14.	comment	Comments/suggestions on topic areas, program use miscellaneous subjects.

Type 'quit' to leave menu.

[To leave the RACE menu, just type "quit" and press the Return key.

quit **<cr>**

RACE Command (RETURN to see list): **<cr>**

Type: To:

talk   Read + write comment on environmental topics.
new   Look at new comments.
pick   Limit the list of topics to read with the 'new' command.
help   Instruction on use.
bye   Leave the system.

RACE Command (RETURN to see list): **bye**

---

*[At this point, you are returned to your basic prompt. To log out of the ETIS system, just type "logout"
and press the Enter key.]*

APPENDIX D:

EXAMPLE SESSION FOR "PICK" AND "NEW"

PICK and NEW are two of the five options you are given when you first enter the RACE bulletin board. They are important time-savers for those who are interested in only certain topic areas. By specifying those topics, you will be shown <u>only</u> the notes or responses that fall within those topics, and <u>only</u> those that you have not read previously. The computer will keep track of the notes and responses that you have seen, and will show you only new postings.

If you decide at any time that you would like to browse through previously read notes in your designated topic areas, or notes in other topic areas, you simply use the "talk" command described in Appendix B instead of the "new" command described below.

As in previous appendices, user inputs are shown in bold print and tutorial comments are italicized and in brackets.

RACE Command (RETURN to see list): **<cr>**

Type:	To:
talk	Read + write comment on environmental topics.
new	Look at new comments.
pick	Limit the list of topics to read with the 'new' command.
help	Instruction on use.
bye	Leave the system.

RACE Command (RETURN to see list): **pick** **<cr>**

[After typing the "pick" command and pressing the Enter key, the system will present you with the complete list of RACE topic areas, one at a time, and will ask whether you want to add it as one of the files to routinely review each time you log in.]

```
        waiver
New file.  Add it? y
        require
New file.  Add it? n
        fee
New file.  Add it? y
        penalty
New file.  Add it? y
        order
File exists.  Keep it? y
        NEPA
New file.  Add it? n
```

[The program will continue to list each RACE topic area, asking whether you want it added to your reading file. Note that, in this example, the "order" topic area had been previously designated, and now the program asked whether you wanted to keep it as part of your reading file. This feature allows you to alter your list of topics at any time by using the "pick" command.]

RACE Command (RETURN to see list): **new**   **<cr>**

[The next time you log in, type in the "new" command and press the Enter key as shown above. The computer will automatically review the files that you designated with the "pick" command. At the lower left side of your screen, you will see the titles of your selected areas flashing by very quickly. Each title that passes by contains no unread notes or responses. If any new notes have been posted, the computer will display those for you. You may read or respond to any of them as described in Appendices B and C.]

[After all previously unread notes or responses have been displayed for you, you will once again receive the RACE prompt.]

RACE Command (RETURN to see list): **bye**   **<cr>**

[The "bye" command will cause you to exit the RACE bulletin board and return to your basic system prompt. To log out of the ETIS system completely, you would then type "logout" and press the Enter key.]

flower osiris 3> **logout**   **<cr>**

(End of session)

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CECRL, ATTN: Library 03755

WES, ATTN: Library 39180

Norton AFB, CA 92409
  ATTN: AFRCE-MX/DE

AFESC, Tyndall AFB, FL 32403

NAVFAC
  ATTN: Division Offices (11)
  ATTN: Facilities Engr Cmd (9)
  ATTN: Naval Public Works Ctr (9)
  ATTN: Naval Civil Engr Lab (3)
  ATTN: Naval Constr Battalion Ctr

443 ABG/DE
Altus AFB, OK 73923-5436

43 CSG/DEEV
Anderson AFB APO 96334-5000

HQAFSC/DEV
Andrews AFB, MD 20334-5000

1776 ABW/DEEV
Andrews AFB, MD 20331-5000

AEDC/DEV
Arnold AFB, TN 37389

56 CSS/DEN
Avon Park AFB, FL 33225-5000

Environmental Office
Barksdale AFB, LA 71110-5000

9 CSB/DEEV
Beale AFB, CA 95903-5000

67 CSG/DEEV
Bergstrom AFB, TX 78743

343 CSG/DEEV
Eielson AFB, AK 99702

97 CSG/DEEV
Blytheville AFB, AR 72317-5000

6570 ABG/DE
Brooks AFB, TX 78235-5000

27 CSG/DEEV
Cannon AFB, NM 88103

7 CSG/DEEV
Carswell AFB, CA 95342-5000

437 ABG/DE
Charleston AFB, SC 29404-5045

3345 ABG/DE
Chanute AFB, IL 61868-5046

14 ABG/DE
Columbus AFB, MS 39701-5000

1010 CSG/DEEV
Cheyenne Mountain AFB, CO 80912-5605

836 CSG/DEEV
Davis-Monthan AFB, AZ 85707-5000

94 CSG/DEEV
Dobbins AFB, GA 30069-5000

436 ABG/DE
Dover AFB, DE 19902-5516

96 CSG/DEEV
Dyess AFB, TX 76127-5000

AFFTC/DEV
Edwards AFB, CA 93523

44 CSG/DEEV
Ellsworth AFB, SD 57706-5000

HQ AAC/DEPV
Elmendorf AFB, AK 99506-5001

21 CSG/DEEV
Elmendorf AFB, AK 99506-5000

11 TCG/LCG
Elmendorf AFB, AK 99506

32 CSG/DEEV
Fairchild AFB, WA 99011-5000

831 CSG/DEV
George AFB, CA 92394-5000

3480 CES/DE
Goodfellow AFB, TX 76908-5000

321 CSG/DEEV
Grand Forks AFB, ND 58205-5000

416 CSG/DEEV
Griffiss AFB, NY 13441-5000

305 CSG/DEEV
Grisson AFB, IN 46971-5000

3245 ABG/DEEV
Hanscom AFB, MA 01731-5000

ESD/DEP
Hanscom AFB, MA 01731

2849 ABG/DEVW
Hill AFB, UT 84056

31 CSG/DEEV
Homestead AFB, FL 33039-5000

834 CSG/DE
Hurlburt Field, FL 32544-5000

3380 CES/DE
Keesler AFB, MS 39534-5000

SA ALC/EM
Kelly AFB, TX 78241

1606 ABW/DEEV
Kirkland AFB, NM 87117-5000

3700 ABG/DE
Lackland AFB, TX 78236-5000

HQ SAC/DEPV
Langley AFB, VA 23665-5001

47 ABG/DE
Laughlin AFB, TX 78843-5000

314 CSG/DE
Little Rock AFB, AR 72099-5000

42 CSG/DEEV
Loring AFB, M 04751-5000

5 D/DEV
Los Angeles AFB, CA 9009

3415 ABG/DE
Lowry AFB, CO 80230-5000

Environmental Office
Luke AFB, CA 85309-5000

56 CSG/DEEV
MacDill AFB, FL 33608

341 CSG/DEEV
Malstrom AFB, MT 59402-5000

22 CSG/DEEV
March AFB, CA 82518-5000

323 CSG/DEEV
Mather AFB, CA 95655-5000

HQ AU/DEEV
Maxwell AFB, AL 36112-5001

62 ABG/DEEV
McChord AFB, WA 98438-5436

SM ALC/EM
McClellen AFB, CA 95652-5990

384 CSG/DEEV
McConnell AFB, KS 67221-5000

438 ABG/DE
McGuire AFB, NJ 08641

91 CSG/DEEV
Minot AFB, ND 58705-5000

347 CSG/DEEV
Moody AFB, GA 31699-5000

366 CSG/DEEV
Mt. Home AFB, ID 83648-5000

354 CSG/DEEV
Myrtle Beach AFB, SC 29579-5000

554 DESS/DESEP
Nellis AFB, NV 89191-5000

2803 ABG/DE
Newark AFB, OH 40357

63 ABG/DEEV
Norton AFB, CA 92409-5965

HQ SAC/DEV
Offut AFB, NE 68113-5001

509 CSG/DEEV
Pease AFB, NH 03803-5000

AFSPACECOM/DEPD
Peterson AFB, CO 80914-5001

3SSW/XREE
Peterson AFB, CO 80914-5000

1003 CES/DEEV
Peterson AFB, CO 80914-5000

HQ ATC/DEE
Randolph AFB, TX 78150-5001

12 ABG/DE
Randolph AFB, TX 78150-5001

64 ABG/DE
Reese AFB, TX 79489

Environmental Office
Richards-Gebaur AFB, MO 64030

HQ AFRES/DEV
Robins AFB, GA 20334-5000

HQ MAC/DEEV
Scott AFB, IL 62225-5001

4 CSG/DEEV
Seymour Johnson AFB, NC 27531-5005

363 CSG/DEEV
Shaw AFB, SC 29152-500

3750 ABG/DE
Sheppard AFB, TX 76311

325 CSG/DEEV
Tyndall AFB, FL 32403-5000

HQUSAFA/DE
USAF Academy, CO 80840-5841

71 ABG/DE and NW-DOM
Vance AFB, OK 73705-5000

1 STRAD/ET
Vandenberg AFB, CA 93437-5000

439 ABG/DE
Westover AFB, MA 01022-5000

351 CSG/DEEV
Whiteman AFB, MO 65305-5000

82 ABG/DEEV
Williams AFB, AZ 85240-5045

913 TAG/AFRES
Willowgrove AFB, PA 19090

HQ AFLC/DEV
Wright-Patterson AFB, OH 45433-5001

2750 ABW/EM and 2750 CES/DE
Wright-Patterson AFB, OH 45433-5000

913 TAG/AFRES
ASD/DES
Wright-Patterson AFB, OH 45433

ASD/PMD
Wright-Patterson AFB, OH 45433

AFIT/DEM
Wright-Patterson AFB, OH 45433

Environmental Office
Youngstown Municipal Aprt, OH

379 CSG/DEEV
Wurtsmith AFB, MI 48753-5000

HQUSAF 20314
ATTN: LEEVO

Defense Technical Info. Ctr 22314
ATTN: DDA (2)

Natl Guard Bureau Instl. Div 20310

US Army Env Hygiene Agency
ATTN: HSHB-E 21010

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